

Binding element for manufacturing a binding file and method which makes use of such a binding element for manufacturing the binding file.

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The present invention concerns a binding element for manufacturing a binding file and a method which makes use of such a binding element for manufacturing the binding file.

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In particular, the invention aims to produce a binding file formed of a U-shaped back and two end leaves for binding a bundle of leaves such as for example leaves with photos in order to make a photo album.

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Binding elements provided with an outer covering are already known, whereby the outer covering, before the bundle is being bound, has already been provided with a print to thus render the bound bundle more aesthetical.

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Such outer coverings can for example be made of laminated, colour-printed paper.

It goes without saying that the outer covering may not only
25 be decorative, but that it can also be made as a protective layer protecting the bundle against all sorts of external influences.

In order to produce a bundle by means of these known
30 binding elements, use is made of a method which is carried out partly in a mechanical manner and partly manually.

In the known methods, an outer covering is first taken as a basis which is provided in a mould and on which is put a layer of liquid glue.

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Secondly, one or several strips of cardboard are provided on the liquid glue.

Usually, three strips of cardboard are provided, the middlemost of which is usually narrower and functions as a binding strip for the bundle to be put in place.

By providing three separate strips, the binding element can be easily folded in a U-shape without being hindered by the stiffness of the cardboard.

The outer covering is folded back and fixed at the edges.

Next, the side of the bundle to be bound is roughened and this rough side is coated with a liquid glue, after which the bundle can be provided in the binding element and can be pressed against the middlemost cardboard strip so as to form a bound bundle.

A disadvantage is that this method is complex and time-consuming.

The use of liquid glue complicates the application of the method considerably, since the thickness and density of the glue have a great impact on the quality of the bound bundle.

For, if too little glue is provided, the strips will not adhere well on the outer covering and will come off after a while.

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Another disadvantage of liquid glue is that it evaporates quickly, which implies that the glue container should always be sealed in case of repeated applications.

10 Another disadvantage is that the use of liquid glue requires a thorough cleaning of the machine when it is started and stopped.

Anyway, it is clear that the known method requires some
15 skill and experience to obtain a qualitatively well bound bundle.

Alternative methods are already known whereby the cardboard strips are fixed to the outer covering by means of a heat-
20 sensitive hotmelt glue.

A disadvantage, however, is that during the heating-up the cardboard strips may shift in relation to one another as the glue is liquidized while being heated.

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Also, here as well, some dexterity and experience is required to obtain a rigid, well bound bundle.

Another additional disadvantage of the application of the
30 known methods is that much dust is produced while

roughening the edge of the bundle, making dust extraction necessary.

The present invention aims to remedy one or several of the
5 above-mentioned and/or other disadvantages by providing a
binding element for manufacturing a binding file with a U-
shaped back and two end leaves, whereby the binding element
is a semi-finished product on the basis of which the
binding file can be made, and whereby this binding element
10 is a flat binding element consisting of a support which is
formed of a central flat strip out of which the back will
be formed later and of two flat plates on either side of
the above-mentioned strip, which support is provided with a
covering provided over or around said support and which is
15 provided with a layer of hotmelt glue on the outside
extending on the outer surface on one side of the thus
formed binding element and on the edges of the opposite
side of said binding element for fixing a printed outer
covering.

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An advantage is that the binding elements are flat and thus
can be easily stored.

Another advantage is that when manufacturing the binding
25 file, the central strip is transformed into a U-shaped
back, which is advantageous in that the leaves are firmly
bound in the binding file and cannot come off when the
bundle is repeatedly opened.

30 Another advantage is that the binding element can be
manufactured in an inexpensive manner.

Thanks to the presence of a hotmelt glue, an outer covering can be easily provided without the use of a liquid glue.

- 5 As the hotmelt glue has been provided beforehand, it can be precisely dosed, so that when applying an outer covering the required amount of glue will be present without any excess or shortage of glue.
- 10 Moreover, the glue can be uniformly provided over the entire surface in this way, without any local zones being created with an excess or shortage of glue.

As the components of the support are entirely or partly
15 surrounded by the covering, these components always stay in the right position in relation to one another, also when the element is heated so as to liquidize the hotmelt glue for fixing the outer covering.

- 20 The present invention also concerns a method for manufacturing the above-mentioned binding file with a U-shaped back and two end leaves, whereby this method takes the above-mentioned binding element as a basis, and whereby in order to make the binding file, a printed outer covering
25 with a downward facing print is provided on a surface and the flat binding element is subsequently placed on the printed outer covering with the side covered with the hotmelt glue facing down, and whereby this outer covering is folded back at the edges over the edges of the binding
30 element and these folded-back edges are locally heated and cooled down again to temporarily fix the printed outer

covering, after which the whole is heated, pressed and cooled down again so as to make the hotmelt glue melt on the side of the printed outer covering and to subsequently transform the central strip so as to form the U-shaped
5 back.

An advantage is that this method is very user-friendly since no dexterity or expert skill is required of the user, and consequently the method does not require any qualified
10 and trained personnel.

A supply of flat, semi-finished binding elements is hereby taken as a basis, for example, a supply of either or not pre-printed outer coverings, optionally a supply of inner
15 coverings which are already provided with a layer of hotmelt glue, whereby in order to form the binding file as desired, a combination of the above-mentioned supplies is made to compose a file as desired by the end user.

20 Another advantage is that the use of a heat-sensitive hotmelt glue does not require any cleaning.

According to a simple application, the heating and pressing can be done by means of heated pressure rollers in between
25 which the element according to the invention is guided and whereby, in order to speed up the process, the heated pressure rollers may possibly be followed by cooled rollers so as to make the heated, melted glue cure faster.

30 In order to better explain the characteristics of the invention, the following preferred embodiment of an element

according to the invention is described by way of example only without being limitative in any way, with reference to the accompanying drawings, in which:

- 5 figure 1 schematically represents a practical embodiment of a binding element according to the invention;
- figure 2 represents a section according to line II-II in figure 1 to a larger scale;
- 10 figures 3 to 7 schematically represent a few steps of the method according to the invention whereby a binding element according to figure 1 is used;
- figure 8 schematically represents the binding file;
- figure 9 represents an alternative embodiment of the
- 15 binding element according to figure 2.

Figures 1 and 2 schematically represent a binding element 1 according to the invention, which binding element 1 is a semi-finished product which is mainly composed of a flat support 2 formed of a central flat strip 3 and two flat

20 plates 4 on either side of the above-mentioned strip 3.

The central strip 3 is thereby designed to form the back of the binding file later on, and the two plates 4 are

25 designed to form the end leaves.

According to the invention, this support 2 is provided with a covering 5 provided over or around said support 2, and the covering 5 is provided with a layer of hotmelt glue 6

30 on the outside, extending on the outer surface of one side

of the binding element 1 and on the edges 7 of the opposite side of the binding element 1.

The melting temperature of the hotmelt glue 6 is preferably not too high, such that a little heating is sufficient to liquidize the glue.

In practice, a hotmelt glue 6 is used whose melting temperature is lower than the temperature at which the toner powders and inks that are traditionally used become damaged, since the binding element 1 may be provided with a pre-printed outer covering 8.

The covering 5 can be made of paper or cardboard, but preference is given to a covering 5 made of paper, preferably paper with a density of 90 g/m².

Naturally, the invention is not limited thereto and also other materials such as linen can be used as a covering 5.

Naturally, the covering 5 can also be made of different components and for each side of the support 2 may be selected another material, for example.

In a practical embodiment of the invention, the binding element 1 is provided with a strip of glue 9 for fixing a bundle of leaves in the binding file later on.

In a practical embodiment of the invention, the strip of glue 9 can be provided as a strip of heat-sensitive hotmelt glue, and the central strip 3 is made of metal, steel or

another heat-conducting material, such that when binding the bundle of leaves the supplied heat is conducted well.

In an alternative embodiment of the invention which is not represented in the figures, the strip of glue 9 may be provided as a self-adhesive strip, which may be further either or not protected by a thin layer of cover foil, which protective layer can be easily removed by the user before binding the bundle.

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The covering 5 preferably forms a hinge 10 at the connection of the strip 3 to the plate 4 between these elements 3,4.

15 Although, in the given embodiment of figure 2, the plates 4 and the central strip 3 are connected by a covering 5, on the top as well as on the bottom side, it is not excluded according to the invention that the covering 5 is provided on only one side and that only a folded-back part of said covering 5 is folded back over the edges of the binding
20 element 1 and is fixed at the edges on the other side of the binding element.

The strip of glue 9 can be provided on the covering 5 at the central strip 3 or it can be provided directly on the
25 central strip 3 without any covering layer 5.

The method for manufacturing a binding file by means of a binding element 1 according to the invention is very simple
30 and as follows.

In a first step of the method according to the invention, a printed outer covering 8 is provided with the print facing down on a face or plate which is not represented.

5 The user can select this outer covering 8 as desired, and it is clear that numerous materials, such as for example paper or cardboard, are suitable. Said outer covering 8 may be pre-printed. Naturally, also other materials such as leather, linen, plastic or the like can be used as an
10 outer covering 8.

As is schematically represented in figure 3, the semi-finished binding element 1 is subsequently provided on the latter with the side coated with the hotmelt glue 6 facing
15 down, such that, after the bundle has been bound, the desired printed outer covering 8 is visible on the outside of the bound bundle.

To this end, the dimensions of the outer covering 8 are
20 selected larger than the dimensions of the binding element 1, such that the edges 11 of the outer covering 8 can be folded back round the edges 7 of the binding element 1 and such that these folded-back edges 11 entirely cover the hotmelt glue 6 on the edges of the top side of the binding
25 element 1, as is shown in figure 4.

In a subsequent step, also shown in figure 4, these folded-back edges 11 are locally heated so as to temporarily fix them by means of heating elements 12 which can be moved and
30 which press the edges 11 of the outer covering 8 against the binding element 1 during the heating.

According to a preferred variant of the method, an inner covering 13 can subsequently be provided on the surface of the binding element 1, on the opposite side of the outer covering 8, as is shown in figure 5.

This inner covering 13 is preferably made of paper having a density of about 90 g/m², but of course the invention is not restricted to the above-mentioned material selection.

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In the given embodiment, the inner covering 13 is formed of two half inner coverings on either side of the central part of the support 2.

15 Although in the embodiment of the figures, the inner covering 13 is made as two halve inner coverings, it is also possible of course to provide the inner covering in the form of a single continuous inner covering which in this case also extends over the central strip 3.

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This inner covering 13 is provided with a layer of hotmelt glue 14 on one side with which the inner covering 13 can be fixed to the binding element 1.

25 In this phase of the method, said inner covering 13 is provisionally fixed to the binding element 1 by locally heating the inner covering 13 at some points or along the edges of the binding element 1.

30 Use is hereby preferably made of an inner covering 13 whose dimensions are selected such that the inner covering 13

extends at least over a distance, over the folded-back edges 11 of the outer covering 8.

In the following step of the method, the formed whole, either or not provided with inner coverings 13, is heated, pressed and cooled down again, such that the hotmelt glue 6, 14 between the binding element 1 and the outer and inner covering 8, 13 is liquidized so that, after these coverings 8, 13 have cooled down again, they are firmly fixed to the binding element 1.

For the heating and pressing, as shown in figure 6, use is preferably made of rollers, a number of which are hot rollers 15, followed by a number of cold rollers 16, in between which the formed whole can be guided in the direction of the arrow P.

The hot rollers 15 can thereby be provided with a screen, not represented in the figures, and the whole is preferably placed such between the rollers that said screen is situated at the central strip 3 level, such that the strip of glue 9 at the central strip 3 will not melt due to the contact with the hot rollers 15.

An example of such a screen may consist in that the hot rollers 15 are interrupted at the strip of glue 9 or in that some additional protection is provided over the strip of glue 9 before the whole is guided between the rollers 15.

According to another variant of the method, the heating and pressing of the whole can take place by making use of heated plates in between which the whole is guided or by means of a heating element which is moved with a certain pressure over the binding element 1.

According to an alternative method, it is possible to guide the whole through hot rollers only and to subsequently cool it without making use of cold rollers 16 or other cooling techniques.

Naturally, the method can also be applied by means of other heating, pressing and cooling techniques than the above-mentioned techniques.

Finally, the back of the central strip 3 can be pressed in the required U-shape by means of a press-on element 17, as shown in figure 7, after which the obtained binding element 1 is suitable to function as a binding file 18, namely as a U-shaped back together with two end leaves.

Such a binding file 18, as shown in figure 8, can be used to bind a bundle of leaves in a known manner, by applying this bundle with a free edge in the back and by heating this back with appropriate equipment in order to liquidize the strip of glue 9, after which it is cooled down again so as to make the glue solidify.

In an alternative embodiment of the invention, as shown in figure 9, the support 2 can be made as a continuous flat plate 19, for example made of cardboard, provided with a

recess 20 in the plate 19 concerned along the central strip 3.

Of course it is not excluded to provide several recesses 20
5 in the plate 19.

In another embodiment which is not represented, instead of the central strip of glue 9, a self-adhesive strip of glue can be applied which is provided on the inner covering 13
10 and which, after the inner covering 13 has been provided on the binding element 1, is situated on the top side of the binding element 1 and which extends along two parallel strips next to the central strip 3 or which extends over the entire surface of the top side of the inner covering
15 13.

In this case, the bundle of leaves to be bound is for example stapled first at one edge, and this edge is provided in the back of the binding file 18, after which
20 the bundle is bound by folding up the end leaves such that the strips of self-adhesive glue make contact with the outer leaves of the bundle.

It is clear that a method according to the invention is
25 within anyone's ability and does not require any highly skilled craftsmen.

Moreover, the method makes it possible to obtain binding files in a very flexible manner and with a very
30 professional look, whereby a supply of binding elements 1 is taken on the spot which can be coated with a printed

outer covering 8 as desired, selected from a supply of outer coverings, and optionally an inner covering 13, also to be selected from a supply of inner coverings which are already provided with a layer of hotmelt 14.

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The figures only represent the invention in a schematical manner, and the relations between the different elements, especially the thicknesses, are drawn out of proportion, only in order to be able to illustrate the invention better
10 by means of the figures.

The present invention is by no means restricted to the variants described by way of example and represented in the accompanying drawings; on the contrary, a binding element
15 for manufacturing a binding file and a method applied thereby can be made in all sorts of variants while still remaining within the scope of the invention.

Claims.

1.- Binding element (1) for manufacturing a binding file
5 with a U-shaped back and two end leaves, characterised in
that this binding element (1) is a semi-finished product on
the basis of which the binding file can be made, and in
that this binding element (1) is a flat binding element (1)
consisting of a support (2) which is formed of a central
10 flat strip (3) out of which the back will be formed later,
and of two flat plates (4) on either side of the above-
mentioned strip (3), which support (2) is provided with a
covering (5) provided over or around said support (2) and
which is provided with a layer of hotmelt glue (6) on the
15 outside extending on the outer surface on one side of the
thus formed binding element (1) and on the edges (7) of the
opposite side of said binding element (1) for fixing a
printed outer covering (8).

20 2.- Binding element (1) according to claim 1, characterised
in that the covering (5) is made of paper.

3.- Binding element (1) according to claim 1 or 2,
characterised in that the binding element (1) is provided
25 with a strip of glue (9) for fixing a bundle of leaves in
the binding file later.

4. Binding element (1) according to claim 3, characterised
in that the above-mentioned strip of glue (9) is formed of
30 a hotmelt glue which is provided at the central strip (3)
and in that the central strip (3) is made of metal.

5.- Binding element (1) according to claim 3 or 4, characterised in that the strip of glue (9) consists of a self-adhesive strip.

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6.- Binding element (1) according to claim 1, characterised in that the support (2) is formed of a continuous flat plate (19), provided with one or several recesses (20) in the plate (19) concerned along the central strip (3).

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7.- Binding element (1) according to any one of the preceding claims, characterised in that the binding element (1) is provided with a printed outer covering (8) whose dimensions are larger than the dimensions of the binding element (1) and whose edges (11) are folded down around the edges (7) of the binding element (1), and which is fixed to the latter by means of the above-mentioned hotmelt glue (6).

8.- Binding element (1) according to claim 7, characterised in that the dimensions of the outer covering (8) are such that the folded-back edges (11) of the outer covering entirely cover the hotmelt glue (6) along the edges (7) of the binding element (1).

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9.- Binding element (1) according to any one of the preceding claims, characterised in that the binding element (1) is provided with an inner covering (13) provided with a hotmelt glue (14) on one side with which the inner covering (13) is applied on the binding element (1) and whose dimensions are such that this inner covering (13) extends

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over at least a distance, over the folded-back edges (11) of the outer covering (8).

10.- Binding element (1) according to claim 9,
5 characterised in that the inner covering (13) is provided with a self-adhesive strip of glue on the opposite side of the hotmelt glue (14) for fixing the bundle of leaves to be bound.

10 11.- Binding element (1) according to claim 9 or 10, characterised in that the inner covering (13) is formed of two halve coverings on either side of the central part of the support (2).

15 12.- Binding element (1) according to any one of claims 9 or 10, characterised in that the inner covering (13) is made as a single continuous covering.

13.- Binding element (1) according to claim 10,
20 characterised in that the inner covering (13) is provided with a self-adhesive strip on the opposite side of the hotmelt glue (14) extending over practically the entire surface of the above-mentioned side or over one or several narrow strips on either side of the central strip.

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14.- Binding file, characterised in that it is formed of a binding element (1) according to any one of claims 1 to 13, whereby the central strip (3) has been transformed into a U-shaped back.

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15.- Method for manufacturing a binding file with a U-shaped back and two end leaves, characterised in that this method takes a binding element (1) according to any one of claims 1 to 5 as a basis, and in that in order to
5 manufacture the binding file, a printed outer covering (8) with a downward facing print is provided on a face and the flat binding element (1) is subsequently placed on the printed outer covering (8) with the side covered with the hotmelt glue (6) facing down, and in that this outer
10 covering (8) is folded back at the edges (11) over the edges (7) of the binding element (1) and these folded-back edges (11) are locally heated and cooled down again to temporarily fix the printed outer covering (8), after which the whole is heated, pressed and cooled down again so as to
15 make the hotmelt (6) glue melt on the side of the printed outer covering (8) and to subsequently transform the central strip (3) so as to form the U-shaped back.

16.- Method according to claim 15, characterised in that,
20 prior to the step of heating and pressing the whole, an inner covering (13) is provided on the surface of the binding element (1) along the other side of the outer covering (8), which inner covering (13) is provided with a hotmelt glue (14) which is fixed to the support (2) in a
25 few places by locally heating it, overlapping with the folded-back edges (11) of the outer covering (8), after which the inner covering (13) is permanently fixed together with the outer covering (8) during the above-mentioned step of heating and pressing the whole.

17.- Method according to claim 15 or 16, characterised in that, in order to press and heat the whole, use is made of rollers (15,16) in between which or under which the whole is guided.

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18.- Method according to claim 15 or 16, characterised in that in order to press and heat the whole, use is made of heated plates in between which the whole is guided.

10 19.- Method according to claim 18, characterised in that during the heating and pressing, the central strip (3) is protected from being heated.

20.- Method according to any one of claims 15 to 19,
15 characterised in that a supply of flat binding elements (1) is taken as a basis, a supply of either or not pre-printed outer coverings (8), optionally a supply of inner coverings (13) which are already provided with a layer of hotmelt glue (14), whereby, in order to form the binding file as
20 desired, a combination of the above-mentioned supplies is made to compose a binding file as desired by the end user.